

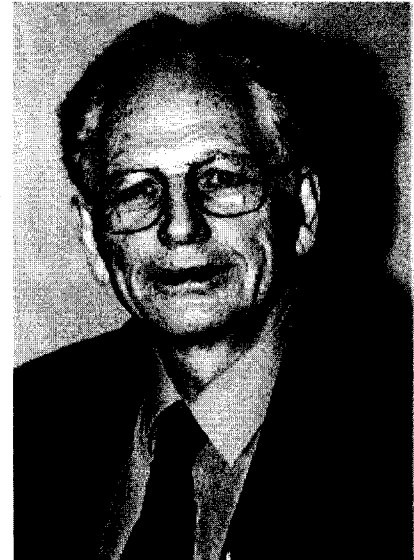
# Frederick Jelinek

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## Education

Ph.D. Electrical Engineering  
Massachusetts Institute of Technology 1962

S.M. Electrical Engineering  
Massachusetts Institute of Technology 1958

S.B. Electrical Engineering  
Massachusetts Institute of Technology 1956

## Research

Dr. Jelinek has recently received an honorary doctorate from Charles University. Click [here](#) to read his acceptance speech and [here](#) to read about this honor. Make sure to scroll to the bottom for an english translation.

Speech Recognition, statistical methods of natural language processing, and information theory.

Prof. Jelinek's past work includes fundamental contributions to information theory and coding. From 1972 to 1993 he headed the large Continuous Speech Recognition group of the IBM T.J. Watson Research Center. There he pioneered with his colleagues the statistical methods that are the basis of current state-of-the art speech recognizers. Prof. Jelinek's special interest is language modeling, that is, the prediction of future words given preceding text or speech. He is also interested in novel methods of automatic parsing, of text understanding, and of machine translation.

Dr. Jelinek was an Instructor at MIT (1959-1962), a Visiting Lecturer at Harvard University (1962), and

a Professor of Electrical Engineering at Cornell University (1962-1974). He is a fellow of the IEEE, was the President of the IEEE Group on Information Theory in 1977, was the recipient of the 1971 Information Theory Group Prize Paper Award, and was recognized in 1981 as one of the top 100 innovators by Technology magazine. In May of 1998 he was the recipient of the IEEE Signal Processing Society's "Society Award" for leadership and technical contributions to the field. In August of 1998, Dr. Jelinek was the recipient of the IEEE Information Theory Society Golden Jubilee Paper Award for a paper titled "Optimal Decoding of Linear Codes for Minimizing Symbol Error Rate," (See reference below). The award is given for articles published in *IEEE Transactions on Information Theory* whose impact on the field of Information Theory is widely recognized. Finally, Dr. Jelinek is the author of two books, Probabilistic Information Theory and the recently published Statistical Methods for Speech Recognition.

## Selected Publications

F. Jelinek, R.L. Mercer and S. Roukos. "Principles of Lexical Language Modeling for Speech Recognition." Advances in Speech Signal Processing, S. Furui and J. Sondhi, Eds. M. Dekker Publishers, New York, NY 1991. Pp.651-700

F. Jelinek and J.D. Lafferty. "Computation of the Probability of Initial Substring Generation by Stochastic Context Free Grammars. Computational Linguistics 17:3(1991): 315-323.

P.F. Brown, J. Cocke, S. Della Pietra, V. Della Pietra, F. Jelinek, J. Lafferty, R.L. Mercer, P. Roossin. "A Statistical Approach to Machine Translation." Computational Linguistics 16:2(1990): 79-85

F. Jelinek. "The Development of an Experimental Discrete Dictation Recognizer." Proceedings IEEE, 73:11 (1985) pp1616-1624, Nov. 1985; and Readings in Speech Recognition, A. Waibel, K.F. Lee, Eds., Morgan Kaufmann Publishers, San Mateo, CA (1990): 587-595

L.R. Bahl, F. Jelinek and R.L. Mercer. "A Maximum Likelihood Approach to Continuous Speech Recognition." IEEE Journal of Pattern Analysis and Machine Intelligence (1983); and Readings in Speech Recognition, A. Waibel, K.F. Lee, Eds. Morgan Kaufmann Publishers, San Mateo, CA 1990. pp308- 319

L.R. Bahl, J. Cocke, F. Jelinek, J. Raviv. "Optimal Decoding of Linear Codes for Minimizing Symbol Error Rate." IEEE Transactions on Information Theory, IT-20, pp. 284-287, March 1974.

F. Jelinek. "Continuous Speech Recognition by Statistical Methods." IEEE Proceedings 64:4(1976): 532-556.

F. Jelinek. "Tree Encoding of Memoryless Time-Discrete Sources with Fidelity Criterion." IEEE Transactions on Information Theory IT-15:5(1969) pp584-590; and Key Papers in the Development of Information Theory, D. Slepian, Ed., IEEE Press, New York, NY 1974.

F. Jelinek. "An Upper Bound on Moments of Sequential Decoding Effort." IEEE Transactions on Information Theory IT-15:1 (1969).